HEALTHY SOILS DEMO PROJECT

Background & Preliminary Data

Key Question: Does compost application to steep slopes increase soil carbon stocks?

Team & Site Information

Project Team

ALAMEDA COUNTY RESOURCE CONSERVATION DISTRICT

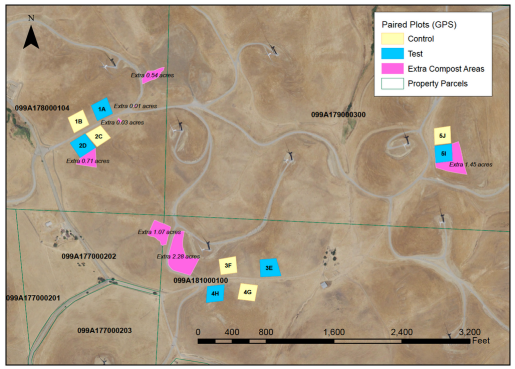
STOPWASTE

NRCS Natural Resources Conservation Service

UNIVERSITY OF CALIFORNIA MERCED

Site Description

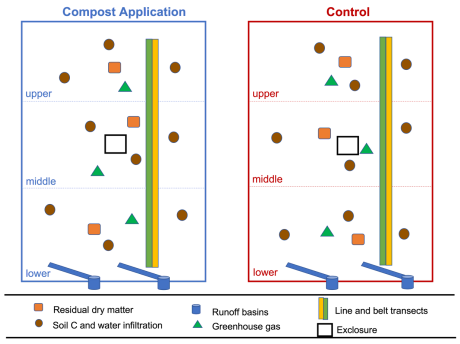
- Soil Taxonomic Class:
  Fine, smectitic, thermic Aridic Haploxererts
- Soil series:
  Altamont (AaD)
- Soil texture:
  45% Sand, 26% Silt, 29% Clay
- Slope: 15 to 30 %
- Soil pH: 6.55
- Managed for grazing, energy production
- Mean Annual Precipitation: 284 mm (11.2 in)



Experimental Design

1/4" Compost Application in Dec 2019

Study Design: 5 Paired-Plots

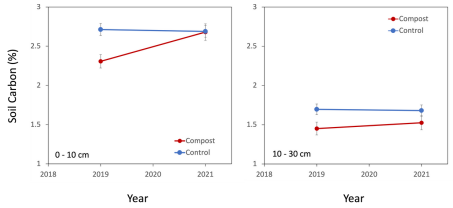


Data collection (baseline + 3 years)

- soil carbon to 1 meter
- soil greenhouse gas emissions
- water infiltration
- nutrient runoff
- aboveground plant biomass
- plant community composition

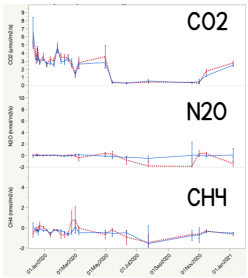
Preliminary Results

(1) Compost significantly increased soil carbon concentrations in the 0-10 and 10-30 cm depths after two years.



(2) The net change in C in composted plots relative to control plots was 5.3 Mg/ha since application in December 2019.

(3) Compost application did <u>not</u> increase soil greenhouse gas emissions.



Main Conclusions (so far)

- Baseline data are super important for carbon accounting and monitoring.
- Compost application is an effective carbon farming tool, even on steep slopes
- Gains in carbon are not offset by increases in soil greenhouse gas emissions.